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Louisiana Antibiotic Sensitivity Program

1. Surveillance Activities

1.1. Antibiotic Sensitivity Active Surveillance

The Infectious Disease Epidemiology Section (IDES) started to conduct Antibiotic Sensitivity Active Surveillance with hospital laboratories to collect aggregate cases of VRE, MRSA, and DRSP in 2000. Currently, Drug Resistant Streptococcus Pneumoniae (DRSP) is one of the most serious public health problems challenging clinicians and state health officials. In order to better track DRSP throughout the state, Louisiana continued its sentinel hospital surveillance program and continued to recruit hospitals to participate in the sentinel program in the new grant year.

Thus far, Louisiana has enlisted 31 hospitals in all nine public health regions to participate in the sentinel surveillance program. Currently, There are1 hospital in region 5; 2 hospitals in regions 2 and 6; 3 hospitals in regions 3, 7, 8 and 9; 4 hospitals in region 4, and 10 hospitals in region 1.

1.2. Louisiana Antibiogram

1.2.1. Basic hospital antibiogram

Most hospitals issue once a year an "Antibiogram" which is a summary of the most important antibiotic resistance patters for their hospital for the year. The Antibiogram is a table listing the microorganisms in the first left column, antibiotics in columns and microorganisms in rows.

	Number Specimens*	% Sensitive to			
		Penicillin	Methicillin	…	…
Staphylococcus aureus					
Staphylococcus epidermidis					
…					

* No duplicates for same patient

The antibiogram shows the spectrum of sensitivity among the most common micro-organisms detected by the hospital laboratory.

It provides useful information for the selection of an empiric antibiotic treatment when a presumptive diagnosis of infection with a specific bacteria is made. It is no longer useful once the specific bacteria has been identified and an antibiotic resistance established for the patient's infection.

There are some limitations when using a hospital antibiogram:

1-Most hospital laboratories do not sort out community acquired infections from hospital acquired. The antibiotic resistance patterns for both groups may be substantially different. Gram negative rods tend to be more prevalent in hospital infections, and more resistant if they originate from a hospital source.

2-Some laboratories do not thoroughly eliminate duplicate cultures from the same patients, so that resistant strain which tend to be cultured more often artificially inflate the resistance prevalence.

If constructed carefully and interpreted with caution, a hospital antibiogram is a useful tool

1.2.2. Statewide Antibiogram

The statewide Antibiogram is a compilation of individual hospital antibiograms. Within each cells the range of sensitivity including 95% of the hospitals is presented: for example in the cell Staphylococcus aureus / Oxacillin a 50-82 results means that 95% of hospitals reported staphylococcus aureus sensitivity ranging from 50% to 82%, or resistance ranging from 18% to 50%.

The Louisiana Antibiogram is not as useful as the individual hospital antibiogram to make empiric treatment decisions. But it is useful to compare one individual hospital antibiogram to the rest of the state.

1.2.3. Using the statewide antibiogram: Some questions and answers

• My hospital is out of range. What does it mean?
For example methicillin sensitivity ranges from 50 to 82% but your antibiograms shows a sensitivity of 35%, so your resistance is 65% a very high number.
--Your lab maybe counting duplicates MRSA
--You have an unusual high MRSA prevalence that needs to be looked into

• I do not find the cell I need in the state antibiograms. Why ?
The cell you are looking for is not used by many hospitals
--It may not be appropriate: check with your infectious disease specialist and the lab
--You may use some unusual, expensive for example, antibiotic that most other hospitals do not use.

The whole purpose of comparing your antibiograms with the state is more to generate questions than to provide answers.

• How often to generate a hospital antibiogram?
Some hospitals generate reports every 3, 6 or 12 months. Generating a report too often, for example every 3 months results in small numbers of isolates and sometimes large variations in % from a quarter to the next. These variations are usually not sustained and do not mean much. Usually an annual report is sufficient

2. Guidelines

A revision of the State of Louisiana's MRSA Management Guideline for Acute and Extended Care Facilities was completed in 2003 and posted on the OPH website. This revision was done in collaboration with the Statewide Antibiotic Sensitivity Advisory Committee.

To improve communication with clinical microbiology laboratories, dissemination of instructions on proper detection, saving and reporting of isolates suspicious for decreased susceptibility to vancomycin was done through a series of articles in the Louisiana Morbidity Report and the Monthly Microbes, a newsletter distributed by the state laboratory.

3. Antibiotic Usage Educational Campaign

In the grant year 2002-2003, IDES worked on the implementation of the "Get Smart: Know when Antibiotics Work" Campaign, formerly known as "Appropriate Antibiotic Use in the Community" Campaign, in various regions across the state.

3.1. The campaign in Alexandria Region

The campaign was piloted in Alexandria (Region 6) on October 1, 2003. Mrs. Patricia Cook, CDC's National Director for the campaign, attended the official launch of the state's pilot program, which took place at Rapides Medical Center in Alexandria, Louisiana. Rapides Medical Center has had an active role in the state's campaign for antibiotic use over the last year. The hospital sponsored the inauguration of the campaign by hosting a luncheon that was attended by 60 people, mainly medical and nursing staff from their hospital and those in the surrounding area. Mrs. Cook and Dr. Raoult Ratard, the State Epidemiologist, made presentations to the attendees about the importance of the campaign and antimicrobial resistance.

The regional office in Alexandria has also been involved in the antibiotic resistance campaign. Their office sponsored a public health forum on antibiotic resistance, which was taped for the local television station. Dr. John Naponick, the regional medical director in Alexandria, Mr. Ken Boudreaux, a pharmacist, Dr. Francis Bryan, the medical director at Rapides Medical Center, Mrs. Patricia Cook, and Ms. Shirley Burton, the regional epidemiologist for Alexandria, participated in the forum. The forum included presentations on antimicrobial resistance and an overview of the campaign along with a question-answer session moderated by Mrs. Linda Hickman. Several newspaper articles were also published on antimicrobial resistance in the local newspaper. This is a part of the initial phases of CDC's National Media Campaign, which allows for radio and television advertisements about antibiotic usage.

In early October 2003, similar activities were held at Earl K. Long Hospital in Baton Rouge, Louisiana for the medical staff and at the Louisiana State University Medical School in Alexandria for their Family Practice residents.

In late October 2003, the topic was presented to approximately 50 nurses from different hospitals in Alexandria at Cabrini Hospital Community Center. The educational seminar included presentations by Dr. John Naponick on antibiotic sensitivity, Dr. Catrin Jones-Nazar, the IDES Antibiotic Program Coordinator, on the "Get Smart: Know When Antibiotics Work" and 12 steps campaign for clinicians and Mrs. Karen Kelso presented on infection control and the role of nursing in the prevention of spread of antimicrobial resistance.

IDES has continued the campaign in the region 6 by distributing posters to area industries, in addition to, some church groups with health ministries. Our regional Epidemiologist, Ms. Shirley Burton, attended a poster session for area nurses especially ICP's in November. During this session, posters and brochures were distributed, as well as, answering questions by the visitors at the poster session. These questions all related to antimicrobial resistance and the Get Smart Campaign.

A school based program has been initiated to reach middle school science teachers to plan for lessons related to bacteria, viruses and the topic of antibiotic resistance, including general information about infection control measures such as, the importance of handwashing. A presentation was done at the Rapides High School to the teachers by Rosemarie Robertson and Shirley Burton to meet the teachers and introduce them to the campaign.

3.2. Other educational activities

On December 10, IDES presented a statewide Videoconference on Antimicrobial Resistance with a presentation on general concepts of Antibiotic Resistance by Dr. Raoult Ratard, MRSA -VRE by Dr. Susanne Straif-Bourgeois and the Get Smart and 12 Steps Campaign for clinicians by Dr. Jones-Nazar.

Several Antibiotics and Related topics presentations have taken place in different hospitals and other locations of the State.

4. Outbreak investigations

There has been concerns about increasing numbers of sporadic cases and small outbreaks of MRSA cutaneous infections. The increase is attributed to increased virulence of community-associated MRSA. Investigation of every single outbreak is not warranted.

Prison outbreak, 2001

In October 2001 a parish prison facility reported an unusually large number of boils and cutaneous infections among prisoners. During a 30 day period in October/November 2001 culture were performed on all the cutaneous infections that presented at the prison clinics. Forty two cultures that grew an organism there were 11 staphylococci methicillin sensitive, 28 methicillin resistant (a 71% proportion of MRSA) and 3 other bacteria non staphylococci. For a population of 1,600 inmates this represented incidence of 210 MRSA skin infections /1,000 /year, a high incidence well above the norm.

Antibiotic sensitivity was reviewed for 26 MRSA specimens: 19 (73%) were sensitive to ciprofloxacine, 22 (84%) were sensitive to clindamycin, 16 (61%) sensitive to tetracycline and 19 (73%) sensitive to trimethoprim-sulfamethoxazole. This fits the pattern observed in community acquired MRSA which are considered to be “multi-sensitive”.

The outbreak lasted two months and subsided. Among 10 isolates tested by pulse field gel electrophoresis (PFGE) 5 belonged to type G61 and 4 to type G36. These two types were among the most prevalent in the city. Out of 59 MRSA isolates from several hospitals in the same city, tested by PFGE 19 (32%) belonged to type G36 and 32 (54%) to type G61. This high prevalence of a few PFGE types among community acquired MRSA has been observed before.